

Subject: glowbugs V1 #205

glowbugs

Sunday, December 14 1997

Volume 01 : Number 205

Date: Fri, 12 Dec 1997 10:36:15 -0800 (PST)

From: Ken Gordon <keng@uidaho.edu>

Subject: Re: Hartley Plate Choke

(208)-882-8745

(208)-885-6133

Great Highland Pipes, Amateur Radio, Electronic Consulting, Home-Schooling
Traditional Roman Catholic

My PGP Public Key Upon Request.

On Fri, 12 Dec 1997, Roderick M. Fitz-Randolph wrote:

> I am in the process of building a VT-4-C (211) Hartley Oscillator
> transmitter for 80 meters (but want to have the ability to go to
> 160 meters) and have most of the components assembled, however, I
> would like to make the RF choke and want to make it out of small
> gauge magnet wire wound on a wood dowel. Does anyone have any
> suggestions as to the size of wire, diameter of the choke (single
> layer wound) and the length (or turns) that would be suitable for
> 40, 80, and 160 meters?

According to Bob Keys, it should be about 200 turns of #22-24 on a 1 inch
form. Can be scramble wound for most rigs. Should be more evenly wound for
higher voltages.

Ken

Date: Fri, 12 Dec 1997 13:04:51 -0800

From: "Frank A. West" <ke6vhm@earthlink.net>

Subject: 6 Meter Transverter

Holiday Greetings to all. I am looking for a Schematic for a 6 meter
transverter using 29 MHz for the IF. Any one know of anything on the
Internet or have a hard copy I can get a copy of? Thanks in advance.

TTFN 73 Frank KE6VHM

Grid Square DM13

Woodcrest, CA

QRP-L #1323 / AK/QRP #269

ICQ UIN# 1778080 ASK ME!!!

CW Forever - Have Paddle will Pound

ke6vhm@earthlink.net

Date: Fri, 12 Dec 1997 15:26:36 -0700 (MST)

From: Jack Meadows <jackmead@getnet.com>
Subject: Nichrome wire

Hi gang,

The parasitic suppressor that I'm making calls for
18 gauge nichrome-60 wire. I called all over Phoenix
and looked in ALL my catalogs...Mouser doesn't even have it! wheew
I had no idea this would be such a challenge.
Anyone have a couple feet of 18 gauge nichrome-60 wire that
you could part with?

Best regards,
Jack W7QQQ

Date: Fri, 12 Dec 1997 15:52:50 -0800 (PST)
From: Ken Gordon <keng@uidaho.edu>
Subject: Re: Plate Choke For the 860 Transmitter.

This was sent to me by Tony, W2GUM.

> The following information was gotten from the 1934 Short Wave Radio
> Manual.
>
> RF choke information for the 860 single tube transmitter.
>
>
> Winding info. # 30 double silk covered wire 3 3/4 " long on a 3/4 "
> dia. bakelite tube.
>

Date: Fri, 12 Dec 1997 19:05:37 -0500
From: JMcAulay <jmc@qnet.com>
Subject: Re: Nichrome wire

At 03:26 PM 12/12/97 -0700, you wrote:

>Hi gang,
>
>The parasitic suppressor that I'm making calls for
>18 gauge nichrome-60 wire. I called all over Phoenix
>and looked in ALL my catalogs...Mouser doesn't even have it! wheew
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>you could part with?
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>Best regards,
>Jack W7QQQ
>

Hi, Jack:

As I recall, Nichrome is (or at least used to be) made by Driver-Harris Co. of Newark, NJ. That might be a lead for you. Also, I may have some in the lab which could be located after exhaustive search, but prob'ly not #18. Suspect it's a bit smaller, but I'll look anyway.

73

John WA6QPL@amsat.org

Date: Fri, 12 Dec 1997 19:36:13 -0500
From: "Ornitz, Barry L" <ornitz@eastman.com>
Subject: RE: Nichrome wire

Nichrome has a resistivity of 150 micro-ohm centimeters. 18 AWG is a diameter of 40.3 mils. Let's calculate the resistance:

Resistivity = $\rho = 150\text{E-6 ohm-cm}$
Diameter = $d = 40.3\text{E-3 in} \times 2.54 \text{ cm/in} = 0.1024 \text{ cm}$
Area = $A = \text{Pi} \times d^2 / 4 = 0.00823 \text{ cm}^2$
Resistance = $\rho/A = 1.5\text{E-4 ohm-cm}/8.23\text{E-3 cm-cm}$
= 0.01823 ohm/cm

For one foot of wire, this works out to be about 0.555 ohm.

This sort of resistance is obtainable with a similar length of 28 to 30 gauge piano wire. Another alternative is the 30 mil 316L stainless welding wire.

You might find piano wire in a hobby shop. Look for someone with a MIG welder to get a little of the stainless wire. Wind you coil with the same number of turns and the equivalent diameter and length as called for in the parasitic choke. Variations in the resistance of +/- 50% should have little effect on the action of the parasitic suppressor.

73, Barry L. Ornitz WA4VZQ ornitz@tricon.net

>From: Jack Meadows [SMTP:jackmead@getnet.com]
>The parasitic suppressor that I'm making calls for
>18 gauge nichrome-60 wire.

Date: Fri, 12 Dec 1997 19:52:14 -0600 (CST)
From: Bob Roehrig <broehrig@admin.aurora.edu>
Subject: Re: Nichrome wire

On Fri, 12 Dec 1997, Jack Meadows wrote:

> The parasitic suppressor that I'm making calls for
> 18 gauge nichrome-60 wire.

I don't think a parasitic suppressor has to use nichrome wire. Isn't that one reason for winding it around a low value resistor - to make it a low Q affair? I don't think I have seen any chokes in commercial

gear that used nichrome. I usually just wind 4 turns or so of #18 wire around a low value 2 watt carbon resistor and let it go at that.

"Nostalgia is a thing of the past"
E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
CIS: Data / Telecom Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

Date: Fri, 12 Dec 1997 20:26:57 -0600 (CST)
From: Kevin Pease <hamradio@mm1001.theporch.com>
Subject: R-388

Does anyone hav an R-388 that is not working that I can combine with the R-388 that I have to make a working Unit ?

Kevin Pease
WB0JZG
Mount Juliet, TN.

Date: Fri, 12 Dec 1997 16:56:10 -1000
From: Peter Demmer <ampruss@hits.net>
Subject: Re: Glass Dielectrics

Ornitz, Barry L wrote:

>=20
> Where do folks come up with this stuff?
>=20
> Copper in glass colors it a reddish brown - look carefully around the
> glass-to-metal seals in a miniature (I think you ment minature vacuum t=
ubes Barry) to see this. The green color in
> glass is normally iron. The original Coke bottles were made from a hig=
h
> iron content glass.
>=20
> Instead of looking in history books about glass making, I suggest folks
> look in scientific reference books about glass properties.
>=20
> Ordinary window glass is soda-lime glass and it is very similar in
> composition to the glass used for small receiving tubes. Borosilicate
> glass is used for transmitting tubes; cooks know it as Pyrex. Pure
> quartz, usually under the trade name of Vicor, is often used in X-ray
> tubes.
>=20
> The dielectric breakdown strength of glass is highly dependent on
> temperature. When glass becomes hot enough to sag or deform, it become=
s
> a good ionic electrical conductor. But at room temperature, it is an
> excellent insulator. Small bubbles in glass do decrease the breakdown
> voltage due to field concentration effects (and air has a lower

> breakdown voltage too).
 >=20
 > For ordinary soda-lime glass, Knoll (1) lists the breakdown voltage as
 > 16 kV at 1 mm thickness. Borosilicate glass can handle 16 kV at only
 > 0.6 mm thickness. Rosebury (2) presents a graph of dielectric breakdown
 > voltage (one minute life for 2 mm thickness at 60 Hz) as a function of
 > temperature for three grades of Corning glasses. The Arrhenius
 > relationship between temperature and conductivity is clearly shown in
 > this graph. Littleton and Morey (3) is probably the most definitive
 > reference, although Retzow (4) has also published in this area. As for
 > polytetrafluorethylene, it is much more expensive than borosilicate
 > glass (but less so than Vicor, but then PTFE is limited to a temperatur=
 > e
 > of less than 200 C). PTFE has a dielectric strength of 15.7 to 19.7 KV
 > for 1 mm thickness (5).

>=20

> 73, Barry L. Ornitz WA4VZQ ornitz@eastman.com

>=20

> (1) Knoll, M., "Materials and Processes of Electron Devices",
 > Springer-Verlag, Berlin, 1959.
 > (2) Rosebury, F., "Electron Tube and Vacuum Techniques", Addison-Wesley,
 > Reading, MA, 1965.
 > (3) Littleton, J.T. and G.W. Morey, "Electrical Properties of Glass",
 > London, 1933.
 > (4) Retzow, U., "Die Eigenschaften elektrischer Isoliermaterialien in
 > graphischen Darstellungen", Berlin 1927.
 > (6) Brandrup, J. and E.H. Immergut, "Polymer Handbook", John Wiley, New
 > York, 1975.

> Barry; Thanks for correcting me concerning the contaminating mineral c=
 ontent identification as iron vice copper. What a wealth of information f=
 ell out from my mistake. However, in the melt to fusing process along wi=
 th soda, potash and lime, it is sometimes done with various other metalic=
 oxides to produce other color effects. This is a facinating thread. Al=
 tho I found some of your referances also listed in several of the history=
 of glass books I have had the pleasure of reading, I contend that the mi=
 stakes we make today is due primarily to the history we havn't studied. L=
 ike Ken, I also built some glass plate capacitors piles. Thanks for the r=
 eferences.

Adding to this glass pot is something called glassmakers soap. This is
 chemically known as manganese dioxide. It is regenerativly added to a
 glass melt as a confined gas to remove the green colored iron oxide.=20
 The spectrographic analysis of the regenerative gasses is where most all
 of the contaminate including copper and iron oxide are identified. In
 any case the whole story is best told to include the problem of many
 forms of contamination depending upon where the quartz was mined. A good
 example is the quartz found and mined around copper mines in Montana,
 et.el...

In the search for vacuum tube seals, the seals that afforded a close
 expansion and contraction coeficient were first realized by what metals
 occured in raw quartz in nature. My comments to Ken, and the list were
 only ment to share of my oun experience with a degree of safty, not to
 show. Again thanks for all your enlightenment Barry and I have placed
 your data in my current file on capacitor construction. Aloha, Peter
 KH6CTQ =20

=20
> >any piece of common window glass. That slight green ting is copper or
> >cooperic oxide. Pure glass is very expensive. If your determned to f=
ollow
> >this line of construction, check out virgin TEFLON=99.
> >

Date: Sat, 13 Dec 1997 05:33:01 +0000
From: Dave Heil <k8mn@clinet.fi>
Subject: Re: Nichrome wire

Bob Roehrig wrote:

>
> On Fri, 12 Dec 1997, Jack Meadows wrote:
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> wire around a low value 2 watt carbon resistor and let it go at that.

Low Q suppressors are what the nichrome wire is about. Look for Richard Measures QST articles on the subject or look up his web page.

Nichrome is the same kind of resistance wire appliance repairmen use for items like blow dryers, toasters, irons, etc. Any appliance repair shop or most electrical wholesalers (not electronic wholesalers) carry it.

73,

Dave OH2/K8MN

Date: Sun, 14 Dec 1997 15:04:50 -0500 (EST)
From: rdkeys@csemail.cropsci.ncsu.edu
Subject: Re: Hartley Plate Choke

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> I am in the process of building a VT-4-C (211) Hartley Oscillator
> transmitter for 80 meters (but want to have the ability to go to
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> suggestions as to the size of wire, diameter of the choke (single
> layer wound) and the length (or turns)that would be suitable for
> 40, 80, and 160 meters?
>

> Your suggestions gratefully received.
>
> Rod, N5HV
> w5hvv@aeneas.net

Typically, in the old days at 200 meters and down, a coil form of anything from 1 to 3 inches diameter was used, with a single layer solenoid or scramble wound approach (most were single layer wound in the 20's but scramble wound in the 30's and later on a bobbin like mom's wooden thread spool). Use wire sized to the requirement, and for a 50 watter that would be around no. 26-30 or so wire, and use around 250-300 turns or thereabouts.

I usually reach for no. 26 or so, if I have it, or whatever rf chokes the junque box will offer. On a single bander Hartley puffer, it is not particularly critical, and almost anything up to a mh or two will do fine, and has always worked for me. The minimum electrically needs to be a 1/4 wave rf transformer at the design frequency. Any coil with a self-resonance of around 250 meters and more should probably work fine on 80 meters, if the wire is sized to around 3 times the plate input current requirements, in simple CW service.

Bob/NA4G

End of glowbugs V1 #205
